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PATENT No.: US 7,043,116 B2



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of: PATENT No : US 7,043,116 B2  
Inventor : Seong-Taek Hwang et al. Examiner : Juliana K. Kang  
Serial No. : 10/825,813 Group Art Unit : 2874  
Filed : April 16, 2004  
Title : DUAL-PORT BROADBAND LIGHT SOURCE WITH INDEPENDENTLY  
CONTROLLABLE OUTPUT POWERS

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Commissioner for Patents  
P.O. Box 145  
Alexandria, VA. 22313-1450

**LETTER**


Sir:

Applicant calls to the attention of the Patent and Trademark Office a Search Report issued abroad in reference to a corresponding foreign application. A copy of the Search Report dated April 14, 2006 is attached.

The enclosed Search Report is not intended to be construed as an admission by the Applicant that any of the references cited therein is material.

Respectfully submitted,

~~CHA & REITER~~

  
By: Steve S. Cha  
Attorney for Applicant

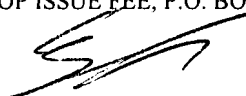
Date: May 22, 2007

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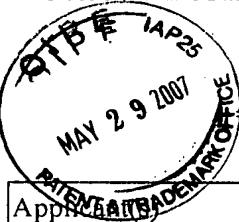
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Steve Cha, Reg. No. 44,069  
(Name of Registered Rep.)

  
(Signature and Date)

# State Intellectual Property Office of People's Republic of China



Add: 25/F., Bldg.B, Tsinghua Tongfang Hi-Tech Plaza, No.1, Wangzhuang Rd.,  
Haidian District, Beijing, P. R. China, Postal Code:100083

Applicant	<b>SAMSUNG ELECTRONICS CO., LTD.</b>	Issuing Date: <b>April 14, 2006</b>
Patent Agent(s)	<b>Zhinmin RONG</b>	
Application No.	<b>200410047678.1</b>	
Title of Invention	<b>Dual-Port Broadband Light Source with Independently Controllable Output Powers</b>	

## THE FIRST OFFICE ACTION

1. ☒ The applicant filed a request for substantive examination on \_\_\_\_\_ (day/month/year). The examiner has carried out substantive examination on the above mentioned application for an invention patent in accordance with the provisions of Article 35(1) of the Chinese Patent Law.  
☐ The Patent Office has decided to carry out substantive examination on the above mentioned application for an invention patent in accordance with the provisions of Article 35(2) of the Chinese Patent Law.
2. ☒ The applicant claimed:  
the filing date 2003.9.30 in the Korea Patent Office as the priority date,  
the filing date \_\_\_\_\_ in the \_\_\_\_\_ Patent Office as the priority date,  
the filing date \_\_\_\_\_ in the \_\_\_\_\_ Patent Office as the priority date,  
the filing date \_\_\_\_\_ in the \_\_\_\_\_ Patent Office as the priority date,  
the filing date \_\_\_\_\_ in the \_\_\_\_\_ Patent Office as the priority date.  
☒ The applicant has provided a copy of the priority documents certified by the Patent Office where the prior application(s) was/were filed.  
☐ The applicant has not provided a copy of the priority documents certified by the Patent Office where the prior application(s) was/were filed and the priority claim(s) is/are deemed not to have been made in accordance with the provisions of Article 30 of the Chinese Patent Law.
3. ☐ The applicant submitted amendment (s) to the application on \_\_\_\_\_ and on \_\_\_\_\_, wherein, the amendment(s) submitted on \_\_\_\_\_ and \_\_\_\_\_ on \_\_\_\_\_ are unacceptable, because said amendment(s) is/are not in conformity with  
☐ the provisions of Article 33 of the Chinese Patent Law:  
☐ the provisions of Rule 51 of the Implementing Regulations of the Chinese Patent Law.  
The detailed reasons for the amendments being unacceptable are described in the text of this Office Action.
4. ☒ The examination was carried out based on the application documents originally filed.  
☐ The examination was carried out based on the application documents indicated below:  
☐ Description:  
Pages \_\_\_\_\_ of original application documents filed on the application date,  
Pages \_\_\_\_\_ filed on; Pages \_\_\_\_\_ filed on;



Pages \_\_\_\_\_ filed on; Pages \_\_\_\_\_ filed on;

☐ Claims:

Pages \_\_\_\_\_ of original application documents filed on the application date,

Pages \_\_\_\_\_ filed on; Pages \_\_\_\_\_ filed on;

Pages \_\_\_\_\_ filed on; Pages \_\_\_\_\_ filed on;

☐ Drawings:

Pages \_\_\_\_\_ of original application documents filed on the application date,

Pages \_\_\_\_\_ filed on; Pages \_\_\_\_\_ filed on;

Pages \_\_\_\_\_ filed on; Pages \_\_\_\_\_ filed on;

☐ Abstract: ☐ Filed on the application date; ☐ filed on \_\_\_\_\_

☐ Drawing selected for publication on the front page of the application: ☐ Filed on the application date; ☐ filed on \_\_\_\_\_

5. ☐ This Notification is issued without a search having been conducted.

☒ This Notification is issued with a search having been conducted.

☒ The following reference documents have been cited in this office action (their serial numbers will be referred to in the ensuing examination procedure):

Serial No.	Reference document( Number or Title)	Publication Date (or Filing date of interference patent applications)
1	US20020131695A1	19day 09 month 2002 year
2	US20010046364A1	29day 11 month 2001 year
3		day month year
4		day month year

6. The result of the examination is as follows:

☐ Description:

☐ The subject matter of the application falls into the scope on which no patent rights shall be granted as provided by Article 5 of the Chinese Patent Law.

☐ The description is not in conformity with the provisions of Article 26(3) of the Chinese Patent Law.

☐ The description is not in conformity with the provisions of Rule 18 of the Implementing Regulations of the Chinese Patent Law.

☒ Claims:

☐ Claim \_\_\_\_\_ falls into the scope, on which no granted patent rights shall be granted, as provided by Article 25 of the Chinese Patent Law.

☐ Claim \_\_\_\_\_ is not in conformity with the definition of invention as prescribed by Rule 2(1) of the Implementing Regulations of the Chinese Patent Law.

☐ Claim \_\_\_\_\_ does not possess novelty as provided by Article 22(2) of the Chinese Patent Law.

☒ Claim 1-16 does not possess inventiveness as provided by Article 22(3) of the Chinese Patent Law.

☐ Claim \_\_\_\_\_ does not possess practical applicability as provided by Article 22(4) of the Chinese Patent Law.

☐ Claim \_\_\_\_\_ is not in conformity with the provisions of Article 26(4) of the Chinese Patent Law.

☐ Claim \_\_\_\_\_ is not in conformity with the provisions of Article 31(1) of the Chinese Patent Law.

☐ Claim \_\_\_\_\_ is not in conformity with the provisions of Rule 20 to 23 of the Implementing Regulations of the Chinese Patent Law.

☐ Claim \_\_\_\_\_ is not in conformity with the provisions of Article 9 of the Chinese Patent Law.

☐ Claim \_\_\_\_\_ is not in conformity with the provisions of Rule 12(1) of the Implementing Regulations of the Chinese Patent Law.

The detailed reasoning for the above opinion is described in the text of this office action.

7. On the basis of the above opinion, the examiner holds that:

☐ The applicant should make amendments as required in the text of this office action.

☐ The applicant should provide reasons for that the above mentioned patent application can be granted patent right, and make amendments to the specification as described in the text of this office action; otherwise the patent right shall not be granted.

☒ The patent application does not possess any substantive contents for which patent right may be granted, if the applicant fails to provide reasons or the reasons provided are not sufficient, this application will be rejected.

8. The applicant's attention is drawn to the following matters:

(1) In accordance with the provisions of Article 37 of the Chinese Patent Law, the applicant shall submit a response within four months from the date of receiving this office action. If the applicant fails to meet the time limit without any justified reason, the application shall be deemed to have been withdrawn.

(2) The amendment made by the applicant shall be in conformity with the provisions of Article 33 of the Chinese Patent Law. The amendment shall be submitted in duplicate copies and in the format required by the relevant provisions of the Examination Guideline.

(3) The applicant's response and/or amended documents shall be mailed or submitted to the Receiving Department of the Chinese Patent Office. Documents which are not mailed or submitted to the Receiving Department do not possess legal effect.

(4) The applicant and/or his(its) agent shall not come to the Chinese Patent Office for interview with the examiner without an appointment.

9. The text of this office action consists of a total of 5 sheets, and is accompanied by the following annexes:

☒ A copy of the cited reference documents consisting of 2 sets and 87 sheets.

☐ The \_\_\_\_\_ Examination Department

The Seal of the Examiner: Meng ZUO

## First Detailed Office Action

Application number: 2004100476781

After examination, observations are given as follows:

1. Claims 1-11 are rejected under the provision of Article 22, the third paragraph, of the Patent Law.

1.1 The claim 1 requests for protection of a dual-port broadband light source with independently controllable output powers. While Reference 1 (US 20020131695A1) discloses a broadband light source having independently controllable output powers. More specifically, it discloses the following technical features (please refer to paragraphs 0006 to 0009 on page 1, and Fig. 1b): a first gain medium 3a having two ends; a first input pump light for pumping the first gain medium 3a so as to output a first amplified spontaneous emission through both ends of said first gain medium 3a; a second gain medium 3b having two ends; a second input pump light for pumping the second gain medium 3b so as to output a second amplified spontaneous emission through both ends of said second gain medium 3b; and terminators 5a and 5b having a reflection function (corresponding to the reflector of the present claim 1), which are disposed outside of one ends of the first gain medium and the second gain medium, respectively (corresponding to the inner ends disclosed by the claim 1) for reflecting an input of the first and second amplified spontaneous emission; and output terminals (corresponding to the first output terminal and the second output terminal of the claim 1) is arranged at the other corresponding end of the first gain medium and the second gain medium (corresponding to the external end of the claim 1); the first and the second amplified spontaneous emissions are output to an exterior of the light source through the output terminals.

Therefore, the difference between Reference 1 and that of the claim 1 is that: first, the reflector is disposed between opposite inner ends of the first gain medium and the second gain medium, but the terminals having reflecting function disclosed by Reference 1 are disposed the outside of one ends of the first gain medium and the second gain medium respectively (pleaser refer to Fig. 1b); second, output terminals of the claim 1 are set for the two-way output of the first and the second spontaneous emissions respectively, but Reference 1 combines the two-way outputs to a signal output terminal. The technical problem is solved by this invention and the position of the reflector is changed, such that the directions of the two optical paths transmitting the first and the second amplified spontaneous emission are changed from parallel arrangement and extending along the same direction to a direction that be arranged in straight line but be extended in an opposite direction. Further, the setting of the output terminal is adjusted. It is common sense that changes the position of the reflector in an optical path such that two parallel optical paths are changed to two optical paths

extending along two different directions from the center. It is also commonly used in this technical field that combines output ports do not output signal simultaneously to one output terminal. Therefore, it is obvious for those skilled in the art to obtain the technical solution based on the combination of Reference 1 and common sense. Accordingly, the claim 1 has no prominent substantive features and does not represent a notable progress, i.e., the claim 1 does not meet the requirement of the provision of Article 22, the third paragraph, of the Patent Law.

***(The following is a quotation of Article 22, the third paragraph, of the Patent Law: Inventiveness means that, as compared with the technology existing before the date of filing, the invention has prominent substantive features and represents a notable progress and that the utility model has substantive and represents progress.)***

1.2 The claim 2 refers to the claim 1, but Reference 1 has disclosed its additional technical features (please make reference to paragraphs 0006 to 0009 and Fig. 1b) as the followings: the light source further comprises a first pump light source 1a for outputting the first output pump light with a predetermined wavelength; a first multiplexer 2a which is disposed between the first gain medium and the output terminal and is used to output the first input pump light to the first gain medium 3a (corresponding to the wavelength selective coupler); a second pump light source 1b for outputting the second output pump light with a predetermined wavelength; a second multiplexer 2b which is disposed between the second gain medium and the output terminal and is used to output the second input pump light to the second gain medium 3b. Therefore, the claim 2 has no inventiveness when the claim 1 cited by it has no inventiveness.

1.3 The claim 3 refers to the claim 2, but Reference 1 has disclosed its additional technical features (please make reference to paragraphs 0006 to 0009 and Fig. 1b) as the followings: the light source further comprises an optical isolator 4 (corresponding to the first optical isolator of the claim 3) disposed between the first multiplexer 2a and the output terminal for allowing the first amplified spontaneous emission to pass therethrough and intercepting light traveling in an opposite direction of the first spontaneous emission; and an optical isolator 4 (corresponding to the second optical isolator of the claim 3) disposed between the second multiplexer 2b and the output terminal for allowing the second amplified spontaneous emission to pass therethrough and intercepting light traveling in an opposite direction of the second spontaneous emission. Therefore, the claim 3 has no inventiveness when the claim 2 cited by it has no inventiveness.

1.4 The claim 4 refers to the claim 1, and the difference between its additional technical features and that of the claim 2 is that: the wavelength selective coupler is disposed between the gain medium and the reflector. The claim 2 has no inventiveness over the combination of Reference 1 and common sense as mentioned above. Further, Reference 2 (US 20010046364A1) also discloses a broadband light

source, and more specifically, it discloses the following technical feature (please refer to paragraph 0049 on page 3 and Fig. 5): the coupler 4 (corresponding to the wave selective coupler of the claim 4) is disposed between the gain medium 3 and the reflector 5. Such technical feature has the same function in the claim 2 as that in the present invention, i.e., to pump the gain medium between the gain medium and the reflector by the pump light. Therefore, Reference 2 teaches that applies the above technical feature to Reference 1 so as to solve the technical problem. Accordingly, it is obvious for those skilled in the art to obtain the technical solution of the claim 4 based on the combination of References 1 and 2 and common sense. So the claim 4 has no inventiveness.

1.5 The claim 5 refers to the claim 1, but its additional technical feature is the same as that of the claim 3. The technical feature “the first wavelength selective coupler and the second wavelength selective coupler” is not mentioned in the claim 1. Moreover, the claim 5 fails to describe the relationship between the wavelength selective coupler and the other components, so the protection scope of the claim 5 is not described clearly. The claim 5 does not meet the requirement under the provision of Rule 20, the first item, of the Implementing Regulations of the Patent Law. The claims 2 and 4 clearly describe the relationship between the wavelength selective coupler and the other components. Therefore, if the claim 5 is amended to refer to the claim 2, then its protection scope is the same with that of the claim 3. Hence it is better to amend the claim 5 to refer to the claim 4. Because of the similar comment on the claim 3, the claim 5 has no inventiveness when the claim 4 has no inventiveness.

1.6 The claim 6 refers to the claim 2. Its additional technical feature confines the first connector and the second connector which are disposed in the first and second output terminal respectively. It is commonly used in this technical field that the connector comprises a fiber having an inclined end so as to avoid the output light to be reflect back into the original optical path and interfere with the output signal. Therefore, the claim 6 has no inventiveness when the claim 2 has no inventiveness.

1.7 The claim 7 refers to the claim 1, while reference 1 has disclosed the following technical features (please refer to paragraphs 0006 to 0009 on page 1, and Fig. 1b): the light source further comprises a first pump light source 1a for outputting the first output pump light with a predetermined wavelength; a first multiplexer 2a disposed between the first gain medium and the output terminal for outputting the first input pump light to the first gain medium 3a; a second pump light source 1b for outputting the second output pump light with a predetermined wavelength (corresponding to the third pump light source of the claim 7); a second multiplexer 2b disposed between the second gain medium and the output terminal for outputting the second input pump light to the second gain medium 3b. Moreover, Reference 2 discloses the following technical features (please refer to paragraph 0049 on page 3 and Fig. 5): a pump light source 6 for inputting a pump light with a predetermined wavelength (corresponding to the first or the forth pump light source of the claim 7); a coupler 2 (corresponding

to the first or the forth wavelength selective coupler of the claim 7) disposed between the gain medium (corresponding to the first or the second gain medium) and the output terminal 1 (corresponding to the first or second output terminal of the claim 7) for inputting the pump light emitted by the pump light source 6 to the gain medium 3; a pump light 7 (corresponding to the second or the third pump light source of the claim 7) for inputting a pump light with a predetermined wavelength; a coupler 4 (corresponding to the second or third wavelength selective coupler of the claim 7) disposed between the gain medium 3 and the reflector 5 for inputting the pump light emitted by the pump light source 7 to the gain medium. Therefore, the disclosure of Reference 2 has the same function as that of the claim 7, i.e., the two pump light source are disposed between the gain medium and the output terminal and the gain medium and the isolator, respectively, and the two pump light source pump the gain medium simultaneously. It is obvious for those skilled in the art to obtain the technical solution of the claim 7 based on the combination of References 1 and 2 and common sense. Therefore, the claim 7 has no inventiveness when the claim 1 has no inventiveness.

1.8 The claim 8 refers to the claim 1, but its additional technical feature “the forth wavelength coupler” is not mentioned in the claim 1. The claim 8 fails to describe the relationship between such forth wavelength coupler and the other components of the light source. Therefore, the protection scope of the claim 8 is not described clearly, it is not in consistent with the provision of Rule 20, the first item, of the Implementing Regulations of the Patent Law. The claim 7 describes the relationship between the forth the wavelength coupler and the other components of the source clearly. It could be deduced that the claim 8 should refer to the claim 7. The additional technical features of the claim 8 has been disclosed by Reference 1 (please refer to paragraphs 0006 to 0009 and Fig. 1b): the source further comprises an optical isolator 4 (corresponding to the first optical isolator of the claim 3) disposed between the first multiplexer 2a and the output terminal for allowing the first amplified spontaneous emission to pass therethrough and intercepting light traveling in an opposite direction of the first spontaneous emission; and an optical isolator 4 (corresponding to the second optical isolator of the claim 3) disposed between the second multiplexer 2b (corresponding to the forth wavelength selective coupler of the claim 8) and the output terminal for allowing the second amplified spontaneous emission to pass therethrough and intercepting light traveling in an opposite direction of the second spontaneous emission. Therefore, the claim 8 does not possess the inventiveness when the claim 7 has no inventiveness.

1.9 The claims 9 to 11 refer to the claim 1, and their technical features confine the first gain medium and the second gain medium. Reference 1 (please refer to third line from the bottom of the paragraph 0006 and lines 2 to 3 of the paragraph 0009) discloses the following technical features: the gain medium is comprised of a rare earth doped fiber, typically, an erbium doped fiber. It is commonly used in this technical field that an erbium doped fiber, a thulium doped fiber, a praseodymium



doped fiber and a planar light wave circuit can be used as a gain medium. Therefore, the claims 9 to 11 do not possess inventiveness when the claim 1 has no inventiveness.

2. Claims 12-16 are rejected under the provision of Article 22, the third paragraph, of the Patent Law.

2.1 The claim 12 requests for protection of a method for providing a dual-port broad band light with independently controllable output, while Reference 1 discloses the following technical features (please refer to paragraphs 0006 to 0009 and Fig. 1b): providing a first gain medium 3a having two ends; arranging a first input pump light for pumping the first gain medium so as to output a first amplified spontaneous emission through both ends of said first gain medium 3a; providing a second gain 3b medium having two ends; arranging a second input pump light for pumping the second gain medium 3b so as to output a second amplified spontaneous emission through both ends of said second gain medium; and disposing terminals 5a and 5b with reflecting function (corresponding to the reflector of the claim 12) to the outside of one ends of the first gain medium and the second gain medium respectively (corresponding to the inner ends of the claim 12) so as to reflect the input of the first and the second amplified spontaneous emission; arranging the output terminal to the other ends of the first gain medium and the second gain medium (corresponding to the outer end of the claim 12); wherein, one of the first and the second amplified spontaneous emission from the first and the second gain medium is output to an exterior of the light source through the output terminals.

Therefore, the difference between the claim 12 and Reference 1 is that: the reflector of the claim 12 is disposed between the opposite inner ends of the first gain medium and the second gain medium, but Reference 1 arranges the terminals with reflecting function to the outside of one ends of the first gain medium and the second gain medium (please refer to Fig. 1B); output terminals of the claim 12 are set for the two-way output of the first and the second spontaneous emissions respectively, but Reference 1 combines the two-way outputs of the first and the second spontaneous emission to a output port. The position of the reflector is changed, such that the directions of the two optical paths transmitting the first and the second amplified spontaneous emission are changed from parallel arrangement and extending along the same direction to a direction that be arranged in straight line but be extended in an opposite direction. Further, the setting of the output port is adjusted. It is common sense that changes the position of the reflector in optical paths such that two parallel optical paths are changed to two optical paths extending along two different directions from the center. It is also commonly used in this technical field that combines output ports that do not output signal simultaneously to one output terminal. Therefore, it is obvious for those skilled in the art to obtain the technical solution based on the combination of Reference 1 and common sense. Accordingly, the claim 12 has no prominent substantive features and does not represent a notable progress, i.e., the

claim 1 does not meet the requirement of the provision of Article 22, the third paragraph, of the Patent Law.

2.2 The claims 13 to 15 refer to the claim 12 and their additional technical features are identical with that of the claims 9-11, respectively. Reference can be made to the comments on the claims 9-11. The claims 13 to 15 have no inventiveness when the claim 12 has no inventiveness.

2.3 the claim 16 refers to the claim 12, but its additional technical features have been disclosed by Reference 1 (please refer to paragraph 0006 to 0009 and Fig. 1b): the method further comprises setting a first pump light source for outputting the first output pump light with a predetermined wavelength; setting a multiplexer 2a between the first gain medium and the output terminal for outputting the first output pump light to the first gain medium; setting the second pump light for outputting a second pump light with a predetermined wavelength; setting a second multiplexer 2b between the second gain medium and the output terminal for outputting the second output pump light to the second gain medium. Therefore, the claim 16 has no inventiveness when the claim 12 has no inventiveness.

Based on the above reasons, the independent claims and dependent claims have no inventiveness. There are no any content that can be granted patent right is recorded in the specification. Therefore, this application has no perspective to be granted patent right even if applicant recombines and/or confines the claims according to the specification. If no persuasive reasons are given to state that the present invention has inventiveness within the designated period, it would be rejected.